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Case 4-16180/-

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE APPLICATION OF

Group Art Unit: 121

KNUT A. JAEGGI ET AL

SERIAL NO: ~~120,284~~ 315,962 ✓

FILED: ~~NOVEMBER 13, 1987~~ February 27, 1989 ✓

FOR: NOVEL SUBSTITUTED ALKANE-  
DIPHOSPHONIC ACIDS

Commissioner of Patents and Trademarks

Washington, D.C. 20231

INFORMATION DISCLOSURE STATEMENT

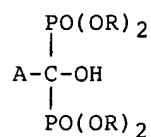
Sir:

In accordance with 37 CFR 1.56, Applicants wish to call the attention of the Examiner to the following references:

1. DE-A-3,203,307 which corresponds to U.S. Patent No. 4,503,049
2. EP-A-84822
3. EP-A-258,618
4. Chemical Abstracts, 105:134140r
5. Chem. Abst. 93: 181,017z
6. EP 186,405

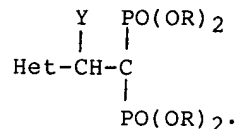
Enclosed herewith are copies of the foregoing references along with form PTO-1449.

References 1 and 2 relates to diphosphonic acid derivatives of the general formula

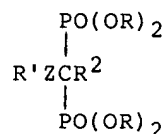


wherein R is hydrogen, an alkali metal atom, an alkaline earth metal atom or an alkyl group of 1-4 carbon atoms and A is derived from a carboxylic acid having antiinflammatory and antiphlogistic activity and containing an aromatic or heteroaromatic group of the formula ACOOH.

Reference 3 relates to alkyl-diphosphonic acid derivatives of the general formula



Reference 4 relates to heterocyclic diphosphonic acid derivatives of the formula



wherein R is hydrogen or alkyl; R' is (substituted) heterocyclic; Z is C<sub>2</sub>-C<sub>8</sub> hydrocarbyl; and R<sup>2</sup> is hydrogen,

hydroxy, acyloxy and (substituted)amino which are useful in the treatment of metabolic disorders of calcium such as bone disease.

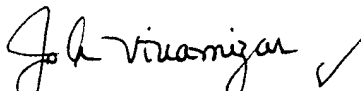
Reference 5 deals with heterocyclyl amino-bis phospho methanes.

Reference 6 discloses non-cyclic amino-bis phospho methanols and generically N-heteroaromatic amino alkyl-1,1-di-phosphono-1-hydroxy alkanes.

Additionally, Applicants wish to call the Examiner's attention to copending application Serial No. 121,268 filed November 16, 1987 and Serial No. 120,287 filed November 13, 1987.

Consideration of the foregoing in relation to this application is respectfully requested.

Respectfully submitted,

  
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Encl. 6 References  
PTO-1449 Form

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